

REMARKS

Initially, Applicants would like to express appreciation to the Examiner for the detailed Final Official Action provided.

Claims 1 and 6-22 are currently pending. Applicants respectfully request reconsideration of the outstanding rejections and allowance of claims 1 and 6-22 in the present application. Such action is respectfully requested and is now believed to be appropriate and proper.

Claims 1 and 6-22 have been rejected under 35 U.S.C. § 102(b) as being anticipated by SAITO et al. (U.S. Patent No. 6,712,625).

However, Applicants note that the SAITO et al. patent fails to show each and every element recited in claims 1 and 6.

As presented in the Response under 37 C.F.R. § 1.112 filed April 2, 2008, Applicants' claimed invention includes a diffusion preventing area. In particular, the diffusion preventing area includes (1) the foundation nickel plating layer unsheathed due to evaporation and removal of at least a portion of the gold or metal alloy including gold; and (2) at least one selected among: (2-1) a metal alloy layer formed of alloying gold and nickel; (2-2) a diffusion layer formed of diffusing a material except gold of the metal alloy including gold; and (2-3) a metal alloy layer which is formed of evaporation and removing at least a portion of the gold and alloying the remaining gold and nickel.

However, the SAITO et al. patent discloses that (A) the poorly wettable primer plating layer is formed by selectively removing a portion of the finish plating layer at the terminal section 111 and serves as an arresting region; (B) the exposed surface region of the base member is preferably copper or a copper alloy Cu-Ni; and (C) the finish plating material applied to the surface of the contact 11 is preferably gold, tin, or a tin alloy.

Accordingly, the poorly wettable primer plating layer of SAITO et al., which corresponds to the diffusion preventing area of the instant invention, has *only* the feature of the foundation plating layer unsheathed due to evaporation and the removal of at least a portion of gold. In other words, the SAITO et al. patent discloses the diffusion preventing area having *only* the foundation plating layer unsheathed due to evaporation (*i.e.*, only a portion of (1) described above). SAITO et al. does not disclose, (2) at least one selected among: (2-1) a metal alloy layer formed of alloying gold and nickel, (2-2) a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and (2-3) a metal alloy layer which is formed of evaporation and removal of at least a portion of gold and alloying the remaining gold and nickel.

Additionally, it is noted that in the Response to Arguments section of the Final Official Action mailed July 14, 2008, the Examiner has taken the position that poor wettability and diffusion prevention are functional equivalents. The Examiner has also taken the position that the poor wettability/diffusion prevention region of the SAITO et al. device and method is formed by selective removal of the plating layers using laser beam machining. Further, the Examiner states that SAITO et al. discloses nickel and gold layers that are removed. Finally, the Examiner takes the position that poor wettability, diffusion prevention, and an arresting region are the same since they all prevent adhesion of material by diffusion.

However, contrary to the Examiner's assertions, Applicants respectfully point out that the SAITO et al. patent does not disclose the claimed device and method. In particular, in Applicants' claimed device and method, the diffusion preventing area has:

(1) the foundation nickel plating layer unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold; and

(2) at least one selected from:

(2-1) a metal alloy layer formed of alloying gold and nickel;

(2-2) a diffusion layer formed of diffusing a material except gold of the metal alloy including gold; and

(2-3) a metal alloy layer which is formed of evaporation and removal of at least a part of the gold and alloying the remaining gold and nickel.

However, as pointed out previously and repeated here, the SAITO et al. patent does not disclose the claimed device and method. In particular, the SAITO et al. patent discloses the following:

(A) a poorly wettable primer plating layer formed by selectively removing a portion of the finish plating layer at the terminal section 111 and serving as an arresting region (as described in the SAITO et al. abstract);

(B) an exposed surface region of the base member is preferably copper or a copper alloy Cu-Ni; and

(C) a finish plating material applied to the surface of the contact 11 is preferably gold, tin, or a tin alloy.

SAITO et al. discloses a gold plating layer, for example, in column 8, line 52 (the gold plating layer). However, SAITO et al. does not disclose the use of metal alloy including gold as a finishing plating layer, so that it is impossible to form (2-2) (i.e., a diffusion layer formed of diffusing a material except gold of the metal alloy including gold) and (2-3) (i.e., a metal alloy layer which is formed of evaporation and removal of at least a part of the gold and alloying the remaining gold and nickel).

Accordingly, for at least the above reasons, the SAITO et al. patent does not disclose a contact for a connector including, inter alia, a terminal portion, a contacting portion, and “a diffusion preventing area formed between the terminal portion and the contacting portion by irradiating laser beams on the gold plating layer or the metal alloy plating layer including gold, which has low wetting property with respect to solder so that melted solder rarely diffuses thereon, wherein the diffusion preventing area has the foundation nickel plating layer unsheathed owing to evaporation and removing of at least a part of gold or metal alloy including gold, and at least one selected among a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removing at least a part of gold and alloying remained gold and nickel”, as set forth in claim 1. Further, for at least the above reasons, the SAITO et al. patent does not disclose a manufacturing method of an element comprising processing a metal material so that a terminal portion is formed; and “forming a diffusion preventing area, which has the foundation nickel plating layer unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold, and at least one selected among a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removing at least a part of gold and alloying remaining gold and nickel, and has low wetting property with respect to solder so that the melted solder rarely diffuses thereon, owing to irradiating laser beams on the gold plating layer or the metal alloy plating layer including gold at a portion between the terminal portion and a portion not to be soldered in the air”, as set forth in claim 6.

Since the reference fails to show each and every element of the claimed device and method, the rejection of claims 1 and 6 under 35 U.S.C. § 102(b) over SAITO et al. is improper and withdrawal thereof is respectfully requested.

Claim 1 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over JP (5-90835). It is noted that the Examiner has repeated this rejection in the Final Official Action mailed July 14, 2008 and has not addressed this rejection in the Response to Arguments section of the Final Official Action.

However, Applicants note that JP '835 fails to teach or suggest the subject matter claimed in claim 1.

The JP 5-90835 document fails to teach or suggest a diffusion preventing area including a foundation nickel plating layer unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold, **and at least one of the following:** a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removal of at least part of gold and alloying the remaining gold and nickel. Thus, Applicants submit that nothing in the applied prior art teaches or suggests the claimed combination including, inter alia, a diffusion preventing area “wherein the diffusion preventing area has the foundation nickel plating layer unsheathed owing to evaporation and removing of at least a part of gold or metal alloy including gold, and at least one selected among a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removing at least a part of gold and alloying remained gold and nickel”, as set forth in claim 1.

Accordingly, Applicants submit that a factual basis for the rejection has not been established and thus a prima facie case of obviousness has not been established, and that rejection of claim 1 under 35 U.S.C. § 103(a) can only result from a review of Applicants' disclosure and the application of impermissible hindsight. Accordingly, the rejection of claim 1 under 35 U.S.C. § 103(a) over JP '835 is improper for all the above reasons and withdrawal thereof is respectfully requested.

Claim 1 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over MORIUCHI et al. (U.S. Patent No. 5,957,736). It is noted that the Examiner has repeated this rejection in the Final Official Action mailed July 14, 2008 and has not addressed this rejection in the Response to Arguments section of the Final Official Action.

However, Applicants note that MORIUCHI et al. fails to teach or suggest the subject matter claimed in claim 1.

The MORIUCHI et al. patent does not disclose, teach, or suggest a diffusion preventing area including a foundation nickel plating layer unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold, *and at least one of the following*: a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removal of at least part of gold and alloying the remaining gold and nickel. Thus, Applicants submit that nothing in the applied prior art teaches or suggests the claimed combination including, inter alia, a diffusion preventing area "wherein the diffusion preventing area has the foundation nickel plating layer unsheathed owing to evaporation and removing of at least a part of gold or metal alloy including gold, and at least one selected among a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except

gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removing at least a part of gold and alloying remained gold and nickel”, as set forth in claim 1.

Accordingly, Applicants submit that a factual basis for the rejection has not been established and thus a prima facie case of obviousness has not been established, and that rejection of claim 1 under 35 U.S.C. § 103(a) can only result from a review of Applicants’ disclosure and the application of impermissible hindsight. Accordingly, the rejection of claim 1 under 35 U.S.C. § 103(a) over MORIUCHI et al. is improper for all the above reasons and withdrawal thereof is respectfully requested.

Claims 6-16 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over JP (5-90835) in view of JP 60-238489. It is noted that the Examiner has repeated this rejection in the Final Official Action mailed July 14, 2008 and has not addressed this rejection in the Response to Arguments section of the Final Official Action.

However, Applicants note that JP 5-90835 and JP 60-238489 fail to teach or suggest the subject matter claimed in claim 6.

JP 5-90835 fails to teach or suggest forming a diffusion preventing area including a foundation nickel plating layer unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold, *and at least one of the following*: a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removal of at least part of gold and alloying the remaining gold and nickel. Thus, Applicants submit that nothing in the applied prior art teaches or suggests the claimed combination including, inter alia, “forming a diffusion preventing area, which has the foundation nickel plating layer unsheathed

due to evaporation and removal of at least a part of gold or metal alloy including gold, and at least one selected among a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removing at least a part of gold and alloying remaining gold and nickel, and has low wetting property with respect to solder so that the melted solder rarely diffuses thereon, owing to irradiating laser beams on the gold plating layer or the metal alloy plating layer including gold at a portion between the terminal portion and a portion not to be soldered in the air", as set forth in claim 6.

JP 60-238489 fails to teach or suggest a method including forming a diffusion preventing area including a foundation nickel plating layer unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold, *and at least one of the following*: a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removal of at least part of gold and alloying the remaining gold and nickel, as recited in claim 6.

Therefore, the JP 60-238489 document fails to cure the deficiencies of the JP 5-90835 device, and even assuming, arguendo, that the teachings of JP 5-90835 and JP 60-238489 have been properly combined, Applicants' claimed manufacturing method of an element to be soldered would not have resulted from the combined teachings thereof.

Further, there is nothing in the cited prior art that would lead one of ordinary skill in the art to make the modification suggested by the Examiner in the rejection of claim 6 under 35 U.S.C. § 103(a) over JP 5-90835 in view of JP 60-238489. Thus, the only reason to combine the teachings of JP 5-90835 and JP 60-238489 results from a review of Applicants' disclosure and

the application of impermissible hindsight. Accordingly, the rejection of claim 6 under 35 U.S.C. § 103(a) over JP 5-90835 in view of JP 60-238489 is improper for all the above reasons and withdrawal thereof is respectfully requested.

Claims 6-16 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over MORIUCHI et al. in view of JP 60-238489. It is noted that the Examiner has repeated this rejection in the Final Official Action mailed July 14, 2008 and has not addressed this rejection in the Response to Arguments section of the Final Official Action.

However, Applicants note that MORIUCHI et al. and JP '489 fail to teach or suggest the subject matter claimed in claim 6.

MORIUCHI et al. fails to teach or suggest forming a diffusion preventing area including a foundation nickel plating layer unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold, ***and at least one of the following:*** a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removal of at least part of gold and alloying the remaining gold and nickel. Thus, Applicants submit that nothing in the applied prior art teaches or suggests the claimed combination including, inter alia, “forming a diffusion preventing area, which has the foundation nickel plating layer unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold, and at least one selected among a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removing at least a part of gold and alloying remaining gold and nickel, and has low wetting property with respect to solder so that the melted solder rarely diffuses thereon, owing to irradiating laser beams on the gold plating layer or the metal

alloy plating layer including gold at a portion between the terminal portion and a portion not to be soldered in the air", as set forth in claim 6.

JP 60-238489 fails to teach or suggest a method including forming a diffusion preventing area including a foundation nickel plating layer unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold, *and at least one of the following*: a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removal of at least part of gold and alloying the remaining gold and nickel, as recited in claim 6.

Therefore, the JP 60-238489 document fails to cure the deficiencies of the MORIUCHI et al. method, and even assuming, arguendo, that the teachings of MORIUCHI et al. and JP 60-238489 have been properly combined, Applicants' claimed manufacturing method of an element to be soldered would not have resulted from the combined teachings thereof.

Further, there is nothing in the cited prior art that would lead one of ordinary skill in the art to make the modification suggested by the Examiner in the rejection of claim 6 under 35 U.S.C. § 103(a) over MORIUCHI et al. in view of JP 60-238489. Thus, the only reason to combine the teachings of MORIUCHI et al. and JP 60-238489 results from a review of Applicants' disclosure and the application of impermissible hindsight. Accordingly, the rejection of claim 6 under 35 U.S.C. § 103(a) over MORIUCHI et al. in view of JP 60-238489 is improper for all the above reasons and withdrawal thereof is respectfully requested.

Claims 6-22 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over JP '835 in view of HASHIMOTO et al. (U.S. Patent No. 4,772,773). It is noted that the Examiner

has repeated this rejection in the Final Official Action mailed July 14, 2008 and has not addressed this rejection in the Response to Arguments section of the Final Official Action.

However, Applicants note that JP '835 and HASHIMOTO et al. fail to teach or suggest the subject matter claimed in claim 6.

JP '835 fails to teach or suggest forming a diffusion preventing area including a foundation nickel plating layer unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold, **and at least one of the following:** a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removal of at least part of gold and alloying the remaining gold and nickel. Thus, Applicants submit that nothing in the applied prior art teaches or suggests the claimed combination including, inter alia, "forming a diffusion preventing area, which has the foundation nickel plating layer unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold, and at least one selected among a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removing at least a part of gold and alloying remaining gold and nickel, and has low wetting property with respect to solder so that the melted solder rarely diffuses thereon, owing to irradiating laser beams on the gold plating layer or the metal alloy plating layer including gold at a portion between the terminal portion and a portion not to be soldered in the air", as set forth in claim 6.

HASHIMOTO et al. fails to teach or suggest a method including forming a diffusion preventing area including a foundation nickel plating layer unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold, **and at least one of the following:**

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a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removal of at least part of gold and alloying the remaining gold and nickel, as recited in claim 6.

Therefore, the HASHIMOTO et al. document fails to cure the deficiencies of the JP '835 method, and even assuming, arguendo, that the teachings of JP '835 and HASHIMOTO et al. have been properly combined, Applicants' claimed manufacturing method of an element to be soldered would not have resulted from the combined teachings thereof.

Further, there is nothing in the cited prior art that would lead one of ordinary skill in the art to make the modification suggested by the Examiner in the rejection of claim 6 under 35 U.S.C. § 103(a) over JP '835 in view of HASHIMOTO et al. Thus, the only reason to combine the teachings of JP '835 and HASHIMOTO et al. results from a review of Applicants' disclosure and the application of impermissible hindsight. Accordingly, the rejection of claim 6 under 35 U.S.C. § 103(a) over JP '835 in view of HASHIMOTO et al. is improper for all the above reasons and withdrawal thereof is respectfully requested.

Claims 6-22 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over MORIUCHI et al. in view of HASHIMOTO et al. (U.S. Patent No. 4,772,773). It is noted that the Examiner has repeated this rejection in the Final Official Action mailed July 14, 2008 and has not addressed this rejection in the Response to Arguments section of the Final Official Action.

However, Applicants note that MORIUCHI et al. and HASHIMOTO et al. fail to teach or suggest the subject matter claimed in claim 6.

MORIUCHI et al. fails to teach or suggest forming a diffusion preventing area including a foundation nickel plating layer unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold, **and at least one of the following:** a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removal of at least part of gold and alloying the remaining gold and nickel. Thus, Applicants submit that nothing in the applied prior art teaches or suggests the claimed combination including, *inter alia*, “forming a diffusion preventing area, which has the foundation nickel plating layer unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold, and at least one selected among a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removing at least a part of gold and alloying remaining gold and nickel, and has low wetting property with respect to solder so that the melted solder rarely diffuses thereon, owing to irradiating laser beams on the gold plating layer or the metal alloy plating layer including gold at a portion between the terminal portion and a portion not to be soldered in the air”, as set forth in claim 6.

HASHIMOTO et al. fails to teach or suggest a method including forming a diffusion preventing area including a foundation nickel plating layer unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold, **and at least one of the following:** a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removal of at least part of gold and alloying the remaining gold and nickel, as recited in claim 6.

Therefore, the HASHIMOTO et al. document fails to cure the deficiencies of the MORIUCHI et al. method, and even assuming, arguendo, that the teachings of MORIUCHI et al. and HASHIMOTO et al. have been properly combined, Applicants' claimed manufacturing method of an element to be soldered would not have resulted from the combined teachings thereof.

Further, there is nothing in the cited prior art that would lead one of ordinary skill in the art to make the modification suggested by the Examiner in the rejection of claim 6 under 35 U.S.C. § 103(a) over MORIUCHI et al. in view of HASHIMOTO et al. Thus, the only reason to combine the teachings of MORIUCHI et al. and HASHIMOTO et al. results from a review of Applicants' disclosure and the application of impermissible hindsight. Accordingly, the rejection of claim 6 under 35 U.S.C. § 103(a) over MORIUCHI et al. in view of HASHIMOTO et al. is improper for all the above reasons and withdrawal thereof is respectfully requested.

Applicants submit that dependent claims 7-21, which are at least patentable due to their dependency from claim 6 for the reasons noted above, recite additional features of the invention and are also separately patentable over the prior art of record based on the additionally recited features.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections, and an early indication of the allowance of claims 1 and 6-22.

SUMMARY AND CONCLUSION

In view of the foregoing, it is submitted that the present response is proper and that none of the references of record, considered alone or in any proper combination thereof, anticipate or render obvious Applicants' invention as recited in claims 1 and 6-22. The applied references of

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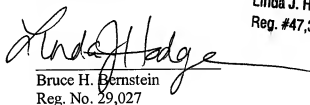
record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

Accordingly, consideration of the present response, reconsideration of the outstanding Final Official Action, and allowance of all of the claims in the present application are respectfully requested and now believed to be appropriate.

Applicants have made a sincere effort to place the present application in condition for allowance and believe that they have now done so.

Should there be any questions, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
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